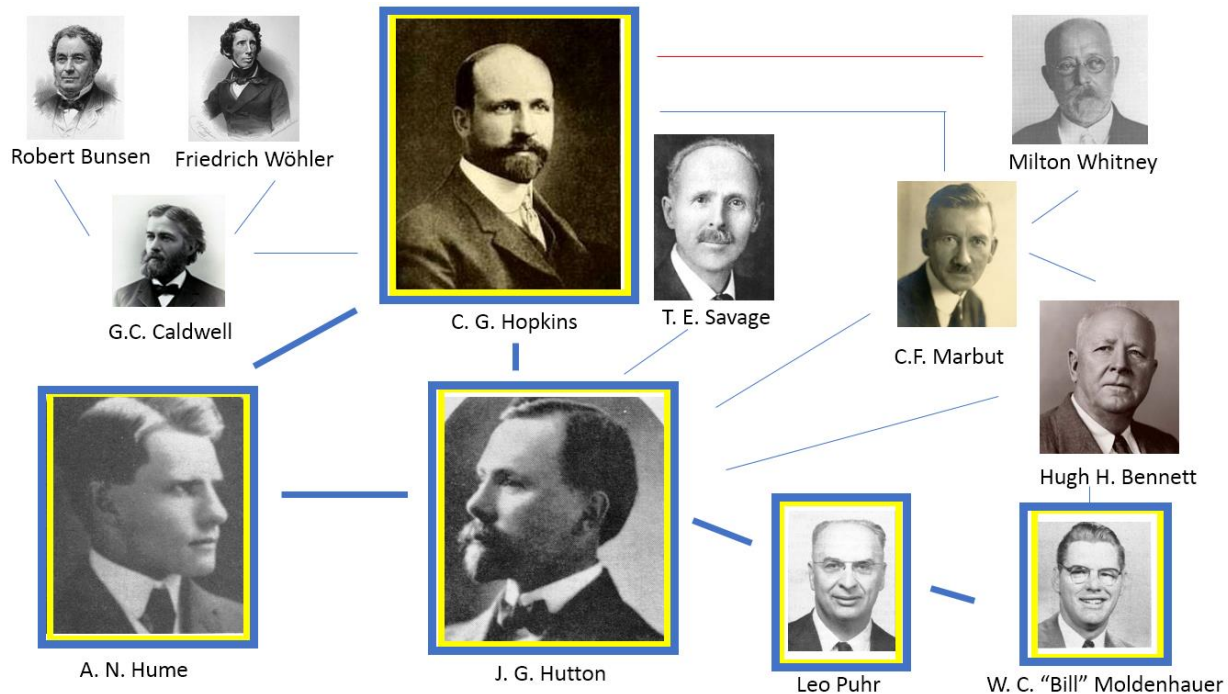


Erosion – ‘Soil and Soul’

(Tom E. Schumacher, Feb. 1, 2018, Ag Heritage Museum, South Dakota State University)

The life and times of Professor Hutton, his interactions with the world of soil science, and past and contemporary ideas of soil and erosion.

Cast of Characters: Blue & Yellow borders signify an SDSU connection (faculty and/or student)



Principal Characters:

Joseph Gladden Hutton: (1873-1939). SDSU Faculty Member, 1911-1939. An avid learner, educator, scientist, philosopher, and poet, he was a leader in the inventory of soils, soil conservation, soil fertility, and permanent agriculture in the state of South Dakota. The Groundbreakers exhibit (Ag Heritage Museum) provides details of his life and accomplishments.

Albert Nash Hume: (1878-1962). Longtime Head of the Agronomy Department at SDSU, 1911-1943. He recruited Hutton to SDSU. A crop specialist who supported and worked closely with J.G. Hutton on soil related projects. “Both (Hume and Hutton) were men of vision and together made a team seldom equaled” – Derscheid, 1981 in ‘Plant Science at South Dakota State University: A Centennial Report’.

Cyril George Hopkins: (1866-1919). Boyhood spent in Estelline, SD. 1890 graduate of SDSU. SDSU faculty member 1890-1892 (Agricultural Chemistry) and 1893-1894 (Pharmacy). Head of the Agronomy Department, Vice Director of the Experiment Station at the University of Illinois, and head of the Illinois soil survey. He was the principal advocate of Permanent Agriculture at the beginning of the 20th Century. He strongly influenced the philosophies and studies of both A.N. Hume and J.G. Hutton.

“What is soil?” was and still is not a trivial question.

During **Professor Hutton’s** education and career there was a tug of war with the study and understanding of soil between geologists, agricultural chemists, agronomists, and pedologists (those who believed that soil is a natural independent body deserving study on its own).



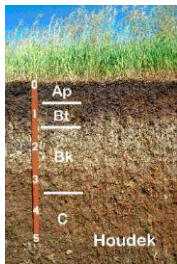
Vasail V. Dokuchaev – Father of Soil Science, first wrote about the five soil forming factors (Parent Material, Climate, Topography, Organisms, Time) in 1883.

Russian concepts of soil and similar ideas developed by Eugene W. Hilgard (a soil scientist at Berkley) were ignored in the US until the late 1920s.

The Director of the US Soil Survey Division, **Curtis F. Marbut**, attributed a change in his understanding of soil (geological to pedological) in the 1920s to the influence of **C.G. Hopkins**, E.W. Hilgard, and translations of Russian soil science literature.

Soil is composed of a complex structured and interrelated mixture of air, water, mineral solids, organic solids, and living organisms. Each soil component is also composed of very complex interconnected entities. The highly interrelated and complex nature of soil makes it difficult to research and understand.

The structure of pores in the soil is especially important for the livelihood of biological organisms. Many soil organisms influence the formation and stability of soil structure (pore structure).



Natural functioning soils have stratified layers called horizons that are formed in their development.

The role of a soil in a landscape, its productive capacity, its response to erosion processes, and its ability to provide ecosystem services require an understanding of the complete soil and not just its surface.



“I trust that we may not forget that the soil is also beautiful” – **J.G. Hutton**, Jan 9, 1929, (Radio), Soil Talk No.3

-Painting composed using South Dakota soils – John Rychtarik (retired arts exhibit coordinator, SD Art Museum), (South Dakota Artists Alliance Website)

Soil and Soul

The earth a bit of star-dust is,
And all of us, but smaller bits
Of that celestial stuff.
In each of us, a bit of Soil
That makes us kin
To all that breathes;
In each of us, a bit of Soul
That makes us kin to God.

Forget not, O my Soul,
The sacred Soil!

The Creator through
An eon’s toil
Combined these two,
And said, “It is enough.
My work is good:
In my own image – Man!
And in his mortal time,
In his own hand,
He holds the fate:
To build or ruin,
To plunder or create.”

- J.G. Hutton,
Christmas, 1934